

## **USER GUIDE**

**RX8200**  
**Advanced Modular Receiver**

**Software Version 2.0.0**



*RX8200 Advanced Modular Receiver*

ENGLISH (UK)

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## 1 Who Should Use This User Guide?

This User Guide is written for operators/users of the RX8200 Advanced Modular Receivers to assist in installation and operation.



### WARNING

Do not remove the covers of this equipment. Hazardous voltages are present within this equipment and may be exposed if the covers are removed. Only TANDBERG Television trained and approved service engineers are permitted to service this equipment.



### CAUTION

Unauthorised maintenance or the use of non-approved replacements may affect the equipment specification and invalidate any warranties.

## 1.1 What Equipment is Covered by This User Guide?

Table 1.1: Equipment Model Descriptions

Model Number	Marketing Code	Description
RX8200	RX8200/BAS	MPEG-2/MPEG-4 HD/SD Modular receiver, ac mains voltage input.

## 1.2 Factory Fitted Hardware and Software Options

Table 1.2: RX8200 Hardware Options

Marketing Code	Description
RX8200/HWO/DVBS2	4-input DVB-S & DVB-S2 capable satellite input
RX8200/HWO/MP2/422	MPEG-2 4:2:2 decode card with only SD decode functionality enabled
RX8200/HWO/HD	HD output card with 1x CVBS, 1x RGB, 3x connectors for ASI/HD-SDI/(SD)SDI,
RX8200/HWO/SD	SD output card with 2x CVBS, 2x connectors for ASI/SDI
RX8200/HWO/BAL/AUD	Balanced analogue and digital audio output providing 2 stereo pairs of audio
RX8200/HWO/IP/OUT	Dual gigabit IP output card

Table 1.3: RX8200 Software Options

Marketing Code	Description
RX8200/SWO/DVBS2/QPSK	DVB-S2 QPSK License key
RX8200/SWO/DVBS2/8PSK	DVB-S2 8PSK License key
RX8200/SWO/DVBS2/LSYM	DVB-S2 Low Symbol Rate License Key
RX8200/SWO/CI	Common Interface CA single service decryption
RX8200/SWO/MSD	CI Multi Service Descrambling
RX8200/SWO/BISS	BISS mode 1 & E CA
RX8200/SWO/BISS/MSD	BISS Multi-service descrambling
RX8200/SWO/DIR	Tandberg Director single service CA
RX8200/SWO/DIR5/MSD	Director Multi Service Descrambling
RX8200/SWO/PW	Password Protection for Web Browser
RX83XX/SWO/MPEG2/SD	MPEG-2 SD decoding
RX83XX/SWO/MPEG2/HD	MPEG-2 HD & SD decoding
RX8200/SWO/MP2/MP4/SD	MPEG-2 & MPEG-4 SD Decode
RX8200/SWO/MP2/MP4/SD/HD	MPEG-2 & MPEG-4 HD and SD Decode
RX8200/SWO/MP2/HD/422	MPEG-2 HD and SD 4:2:2 decode
RX8200/SWO/DCONV	Simultaneous down-conversion of HD to SD
RX8200/SWO/UPCONV	Up-conversion from SD to HD (to 1080i or 720p)
RX8200/SWO/XCONV	Cross-conversion
RX8200/SWO/LDELAY	Low latency decode
RX8200/SWO/MPEG4/SD	MPEG-4 AVC SD decoding
RX8200/SWO/MPEG4/HD	MPEG-4 AVC HD & SD decoding
RX8200/SWO/AC3	Dolby Digital <sup>®</sup> decoding / downmixing
RX8200/SWO/FSYNC	Frame Sync

## 2 Installing the Equipment

### 2.1 Introduction

Use this User Guide for guidance on installation and operation. Only use installation accessories recommended by the manufacturers.

### 2.2 Operating Voltage



#### CAUTION

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your business, consult a qualified electrical engineer or your local power company.

#### AC Models

AC models are fitted with a wide-ranging power supply. It is suitable for supply voltages of 100-240 V ac -10% +6% at 50/60 Hz nominal.

### 2.3 Power Cable and Earthing

Check that the power cable is suitable for the country in which the Receiver is to be used.



#### WARNINGS

1. The Technical Earth is not a protective earth for electric shock protection.
2. This unit must be correctly earthed through the moulded plug supplied. If the local mains supply does not have an earth conductor do not connect the unit. Before connecting the unit to the supply, check the supply requirements. Contact Customer Services for advice.

### 2.4 Rear Panel Connectors



Always use the specified cables supplied for signal integrity and compliance with EMC requirements (see *Reference Guide*).

## RX8200 Advanced Modular Receiver

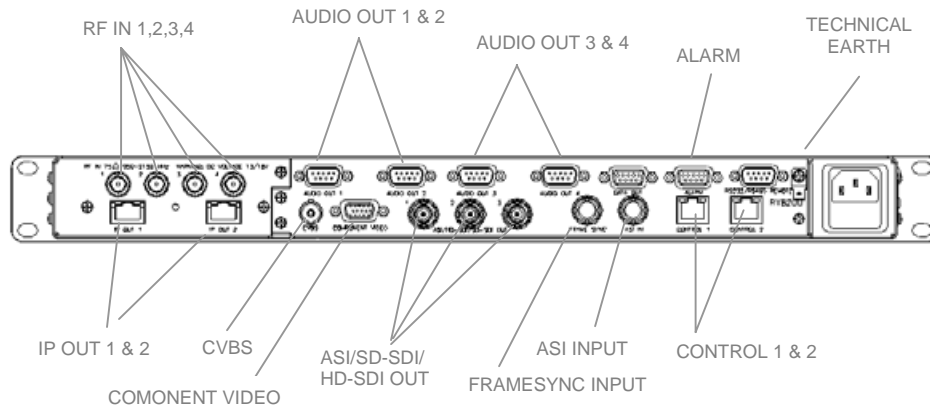


Figure 2.1: Example Rear Panel Connectors (RX8200)

Table 2.1: Types of Connector

Type of Connector	Description
CVBS	75 $\Omega$ BNC connector for SD composite video output
RF IN 1,2,3 & 4	F-type connectors for DVB or DVB-S2 modulated input feed
AUDIO OUT	9-way male D-type connectors for analogue and balanced digital audio output
IP OUT 1 & 2	8-way RJ-45 connectors for 1000BaseT IP output feed & de-encapsulated IP data
CONTROL 1 & 2	8-way RJ-45 connectors for 10/100BaseT Ethernet control and monitoring
ASI IN	75 $\Omega$ BNC connector for ASI input feed
ALARM	9-way male D-type connector for alarm signal output
TECHNICAL EARTH	Spade connector for unit technical earth
ASI/SD-SDI/HD-SDI OUT 1 , 2 & 3	75 $\Omega$ BNC connector for ASI or SDI (user selectable) output feeds



2.5 Connecting the Receiver to the Power Supply



**WARNINGS**

1. Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock
2. As no mains switch is fitted to this unit, ensure the local power supply is switched OFF before connecting the supply cord.
3. The Receiver is not fitted with an on/off switch. Ensure that the socket-outlet is installed near the equipment so that it is easily accessible. Failure to isolate the equipment properly may cause a safety hazard.

Connect the Receiver to the power supply as follows:

- **Power Supply**  
Ensure the power supply is isolated and switched off.
- **Receiver**  
Ensure the correct fuse type and rating has been fitted to both the equipment and the power cable.
- **Supply Cord**  
Connect the lead to the Receiver input connector and then to the power supply. Switch on the power supply.

Table 2.2: Fuse Type and Rating

Power Supply	Fuse Type and Rating
100 - 240 V ac	IEC/EN 60127-2 Sheet 5 Bussmann S505/Littelfuse 215 2 A 250 V T HBC

## 3 Operating the Equipment From the Front Panel

### 3.1 Introduction

The front panel display and keypad may be used to configure, control and monitor the Receiver when an external control system or PC is not used.



#### NOTE

Not all of the receiver User Settings may be viewed or changed from the front panel. The full set of User Settings may be found on the Web browser control interface.



A list of receiver User Settings that may be viewed or changed via the front panel and those that may be viewed or changed via the external web browser interface can be found in the *Reference Guide*.

### 3.2 Receiver Front Panel

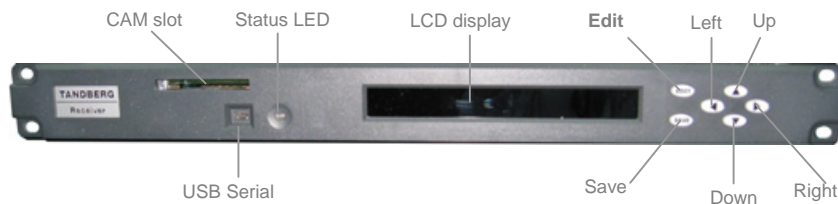


Figure 3.1: Front Panel LEDs and Pushbuttons

### 3.3 Using the Front Receiver Panel Menu System

#### 3.3.1 Arrow Pushbuttons

The four arrow pushbuttons are used to navigate through the receiver menu system. Each arrow pushbutton backlight is illuminated when a further menu can be reached by pressing that pushbutton.

### 3.3.2 Edit and Save Pushbuttons

The edit and save pushbuttons are used to modify User Settings within the menu system. The edit pushbutton backlight is illuminated when the current menu contains a user modifiable setting. To modify a User Setting within a menu, press the edit pushbutton and then use the up and down pushbuttons to change the User Setting. During this edit operation, both the edit and save pushbutton backlights will be illuminated.

If a menu contains more than one modifiable User Setting then the left and right pushbuttons are used to select which User Setting will be edited.

When a User Setting has been modified, the save pushbutton should be pressed to confirm and action this new User Setting.

### 3.3.3 Menu Structure

The range of modifiable User Settings will vary depending on which receiver model is being used. All models have the User Settings arranged within the following top-level menus:

- **System:** This menu contains User Settings for:
  - ✧ IP Control ports set-up
  - ✧ IP Control ports link status
  - ✧ Unit Build version details
  - ✧ Unit Electronic Serial Number
- **Input:** This menu contains User Settings for:
  - ✧ Input feed lock status and bit-rate
  - ✧ Primary and secondary input feed selection
  - ✧ Input feed tuning parameters
  - ✧ Input feed signal and quality levels
- **Service (Program):** This menu contains User Settings for:
  - ✧ The currently selected service for decode from the incoming feed
- **CA:** This menu contains User Settings for:
  - ✧ The currently selected services for decryption from the incoming feed
  - ✧ Director 5 parameters and status



More detail on all User Settings may be found in the *Reference Guide*.

## 4 Operating the Equipment From A Web Browser

### 4.1 Introduction

A PC Web Browser may be used to configure, control and monitor the Receiver. The PC must be connected to either of the two IP control ports on the rear of the receiver (labelled CONTROL 1 and 2). Before operation, the User Settings for the control port must be entered via the system menu on the front panel.

If the receiver is connected to an existing network or is not on the same subnet as the control PC then assistance from the network administrator may be required in modifying the User Settings.

To assist with troubleshooting, the IP control ports will respond to ICMP PING request messages.



CD

More details on all receiver User Settings available on the Web Browser Interface can be found in the *Reference Guide*.

### 4.2 Receiver Web Browser Interface

To use the receiver Web Browser Interface, the IP address assigned to the receiver control port in the front panel system menu should be entered into the address field of the Web browser.

Provided that the network is correctly configured, the following status page should be automatically loaded and displayed.

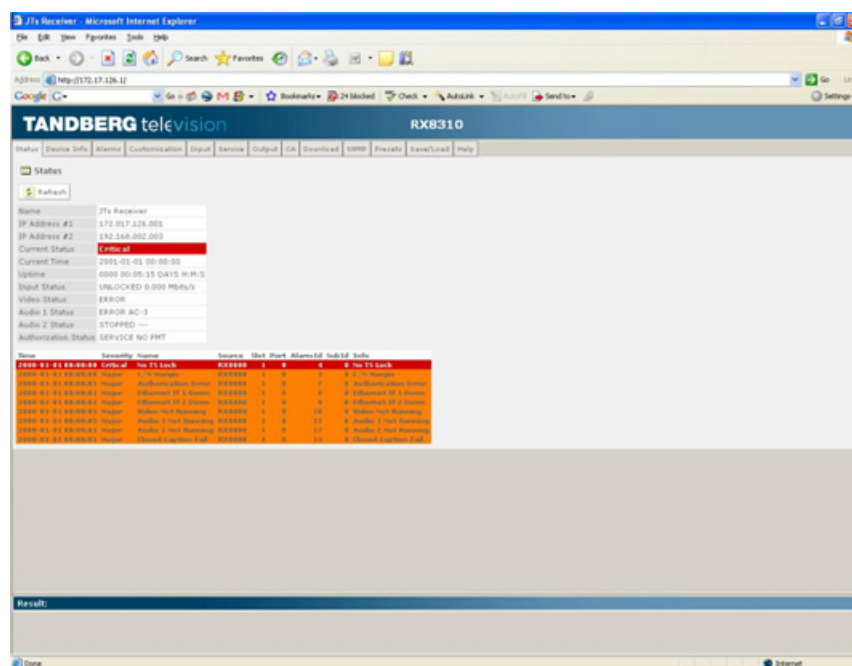


Figure 4.1: Example Status Tab - Web Control for an RX8000 Receiver

### 4.3 Using the Receiver Web Browser Interface

The User Settings that may be viewed or modified from the Web Browser interface are grouped together by function and are displayed on a number of pages. These pages can be viewed by selecting the relevant tabs.

After any changes are made to User Settings, the 'Apply Changes' button must be pressed to action the changes.

#### 4.4 Page Structure

All models have the user setting pages selectable from the following tabs:

- **Status:** This page contains User Settings for:
  - ✧ Unit name and IP address
  - ✧ Input feed status
  - ✧ Video decode status
  - ✧ Audio decode status
  - ✧ Decryption status
  - ✧ Unit alarm status and log
- **Device Info:** This page contains User Settings for:
  - ✧ IP Control Ports Set-up
  - ✧ Unit and module build version details
  - ✧ Fan and unit temperature status
  - ✧ SNMP trap table
  - ✧ Unit reset
- **Alarms:** This page contains User Settings for:
  - ✧ Alarm filtering
  - ✧ Alarm priority configuration
  - ✧ Alarm mapping to output relays
- **Customisation:** This page contains User Settings for:
  - ✧ Enabled license details
- **Input:** This page contains User Settings for:
  - ✧ Input feed lock status and bit-rate
  - ✧ Primary and secondary feed selection
  - ✧ Input tuning parameters
  - ✧ Input signal and quality levels
- **Service (Program):** This page contains User Settings for:
  - ✧ The currently selected service for decode from the incoming feed
  - ✧ The currently selected PCR component from the incoming feed
  - ✧ The currently selected video component from the incoming feed
  - ✧ The currently selected audio components from the incoming feed
  - ✧ The currently selected splice signal components from the incoming feed
  - ✧ The currently selected subtitle and teletext components from the incoming feed
  - ✧ The currently selected services for decryption from the incoming feed
  - ✧ Service selection behaviour control
  - ✧ Video decode aspect ratio conversion control
  - ✧ Video test pattern selection
  - ✧ Audio output control
  - ✧ VBI data output control

- **Output:** This page contains User Settings for:
  - ✧ Selection and configuration of the output feeds
- **Download:** This page contains User Settings for:
  - ✧ Status of in-band software download.
- **SNMP:** This page contains User Settings for:
  - ✧ Protocol selection
  - ✧ MIB parameters
- **Presets:** This page contains User Settings for:
  - ✧ Save and recall of unit presets
- **Save/Load:** This page contains User Settings for:
  - ✧ Saving and restoring unit configuration
  - ✧ Saving unit logs
  - ✧ Saving unit MIBs
- **Help:** This page contains User Settings for:
  - ✧ Using the web interface

## 5 Quick Start Guide - Using the Front Panel Control

### 5.1 Making Signal Connections to the Unit

- ▶ If you have an incoming satellite RF feed, connect this to the rear panel connector marked **RF Input**
- ▶ If you have an incoming ASI (Fiber) feed, connect this to the connector marked **ASI Input**
- ▶ Decoded PAL or NTSC video is output on connector **CVBS**.
- ▶ Decoded analogue or digital audio is output on connectors **AUDIO OUT 1, 2, 3 or 4**. Adaptor cables are used to provide the connector type required for the installation.
- ▶ The incoming feed is routed through the unit and output on connectors **ASI OUT 1, 2 or 3**
- ▶ For models with option RX83XX/HWO/IP/OUT fitted, the incoming feed is also routed through the unit and output on connectors **IP OUT 1** and **IP OUT 2**
- ▶ If the unit is to be controlled by Web browser or PC based control system then the control PC should be connected to connector **CONTROL 1** or **CONTROL 2**
- ▶ If the unit is to be used to decrypt (non-Director) encrypted feeds then a Conditional Access Module and card should be inserted in the slot labelled **Conditional Access Interface** in the front panel

### 5.2 Configuring the Inputs

#### 5.2.1 ASI Input

To configure the unit for ASI (Fiber) input.

- ▶ Select **ASI** input from a submenu off menu 2

#### 5.2.2 Satellite (DVB-S or DVB-S2) Input

Ensure that the incoming feed is connected to connector 1.

To configure the unit for Satellite input the following User Settings should be modified. All of these settings may be found in submenus off front panel menu 2.



- Select **SAT** input
  - Set the LNB frequency
  - Set the Satellite frequency
  - Set the Symbol Rate
  - Set the Modulation scheme and FEC
  - Set the Roll-Off
  - Set the set the LNB power output
  - Set the set the LNB power output level



A description of each of these User Settings can be found in the *Reference Guide*.



#### NOTE

If the unit has successfully locked to the incoming feed, then the TS Lock value in menu 2 should be LOCKED.

### 5.3 Selecting a Decode Service (Program)

Navigate to the Service Selection menu (Menu 3).

- For incoming feeds containing only a single service the service will be selected automatically
- For incoming feeds containing more than one service press **Edit** and, using the **Up** and **Down** pushbuttons, scroll through the service name list. Then press **Save** to select the required service.
- Alternatively, use the **Right** pushbutton to move the cursor to the service ID field and press **Edit**. Enter the required service ID using the **Up** and **Down** pushbuttons for each digit of the service ID.



#### NOTE

If the unit has successfully selected a service, then menu 3 should display the Service ID and Service name.

## 5.4 Configuring the Video Output

- The unit will automatically decode the first video component that it finds within the selected service.
- An alternative video component may be selected from the service tab on the Web Control interface.

If the incoming video is successfully decoded then the status 'OK' should be displayed on the appropriate page. Successfully decoded High Definition video will be output from the connector marked "Video Component". Successfully decoded Standard Definition video will be output from the connector marked "CVBS".

## 5.5 Configuring the Audio Outputs

- The unit will automatically decode the first two audio components that it finds within the selected service.
- Alternative audio components may be selected from the service tab on the Web Control interface

## 5.6 Configuring for Single-service Decryption

- If the service selected for video decode (see *Section 5.3*) contains encrypted components these components will automatically be decrypted by the unit.
- The outgoing feed from the unit will contain these decrypted components.

## 5.7 Configuring for Multi-service Decryption

- When a feed containing more than one encrypted services is applied to the unit, the first 24 services detected are automatically decrypted. A list of these services can be found in the service table off front panel menu 4.
- This list may be modified from the CA tab on the Web Control interface.



### NOTE

This is only applicable for units models that have Multi-service Decryption licenses enabled.

6 Equipment Packaging

6.1 Packaging Statement

The outer carton and any cardboard inserts are made from 82% recycled material and are fully recyclable.

6.2 Packaging Markings

The symbols printed on the outer carton are described below:



Handle with care



This way up



Fragile



Protect from moisture



See *Reference Guide* for details of compliance with directives.



See *Reference Guide* for details of compliance.



Defines country of origin.

RX8200 Advanced Modular Receiver



The packaging is reusable per GB 18455-2001



This symbol guarantees that packaging with this symbol is recyclable and will be accepted by cardboard recyclers



Recyclable per GB 18455-2001

## 7 Materials Declarations

### 7.1 Overview

TANDBERG Television products are designed and manufactured in keeping with good environmental practise. Our component and materials selection policy prohibits the use of a range of potentially hazardous materials. In addition, we comply with relevant environmental legislation.

### 7.2 For the European Union

For product sold into the EU after 1<sup>st</sup> July 2006, we comply with the EU RoHS Directive. We also comply with the WEEE Directive.

### 7.3 For China

For product sold into China after 1st March 2007, we comply with the “Administrative Measure on the Control of Pollution by Electronic Information Products”. In the first stage of this legislation, content of six hazardous materials has to be declared together with a statement of the “Environmentally Friendly Use Period (EFUP)”: the time the product can be used in normal service life without leaking the hazardous materials. TANDBERG Television expects the normal use environment to be in an equipment room at controlled temperatures (around 22°C) with moderate humidity (around 60%) and clean air, near sea level, not subject to vibration or shock.

Where TANDBERG Television product contains potentially hazardous materials, this is indicated on the product by the appropriate symbol containing the EFUP. For TANDBERG Television products, the hazardous material content is limited to lead (Pb) in some solders. This is extremely stable in normal use and the EFUP is taken as 50 years, by comparison with the EFUP given for Digital Exchange/Switching Platform in equipment in Appendix A of “General Rule of Environment-Friendly Use Period of Electronic Information Products”. This is indicated by the product marking:



It is assumed that while the product is in normal use, any batteries associated with real-time clocks or battery-backed RAM will be replaced at the regular intervals.

The EFUP relates only to the environmental impact of the product in normal use, it does not imply that the product will continue to be supported for 50 years.

## 8 Disposal of this Equipment

### 8.1 General

Dispose of this equipment safely at the end of its life. Local codes and/or environmental restrictions may affect its disposal. Regulations, policies and/or environmental restrictions differ throughout the world. Contact your local jurisdiction or local authority for specific advice on disposal.

### 8.2 For the European Union



"This product is subject to the EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) and should not be disposed of as unsorted municipal waste."

## 9 Recycling

TANDBERG Television provides assistance to customers and recyclers through our web site <http://www.tandbergtv.com/ProductRecycling.ink>. Please contact TANDBERG Television's customer services for assistance with recycling if this site does not show the information you require.

Where it is not possible to return the product to TANDBERG Television or its agents for recycling, the following general information may be of assistance:

- ▶ Before attempting disassembly, ensure the product is completely disconnected from power and signal connections.
- ▶ All major parts are marked or labelled to show their material content.
- ▶ Depending on the date of manufacture, this product may contain lead in solder.
- ▶ Some circuit boards may contain battery-backed memory devices.

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